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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/507,507	09/13/2004	Akio Ozasa	12480.000061/US	8575

30593 7590 10/28/2009

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EXAMINER	
BODAWALA, DIMPLE N	

ART UNIT	PAPER NUMBER
1791	

MAIL DATE	DELIVERY MODE
10/28/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/507,507	OZASA ET AL.	
	Examiner	Art Unit	
	DIMPLE N. BODAWALA	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 August 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19 and 26-41* is/are pending in the application.

4a) Of the above claim(s) *20-25,42 and 43* is/are withdrawn from consideration.

5)☒ Claim(s) *9-11,31,33,37,39 and 40* is/are allowed.

6)☒ Claim(s) *1-8,12-19,26-32,34-36,38 and 41* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *5/12/2009,6/1/2009*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/7/2009 has been entered.

New Ground of Rejection

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not

commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. **Claims 1-6, 12-18, 26-28, 32, 34-36 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andersen et al. (US 5,783,126) in view of Doane et al. (US 6,040,063).**

6. As to claim 1, **Andersen et al.** discloses method for manufacturing articles, wherein method comprises steps of:

- Preparing a slurry or dough molding material, which is made by mixtures of starch, water and other material (See col.1 lines 51-60; col.4 lines 64-67; col.7 lines 21-27);
- selected coating material can be added to mixture prior to formation of the article (See col.10 lines 9-18; col.13 lines 37-42), wherein selected coating material comprises of biodegradable material (See col.49);
- heating step is carried out by a variety of ways such as electrical heating, stem heating, infrared light, etc. (See col.45 lines 1-10) and press molding process are capable to heat and mold the molding material and the coating film in a mold having a given-shaped cavity to mold the molding material through the steam expansion, and at the same time soften and pressure bond the coating film to a surface of a biodegradable expanded molded article obtained through the steam expansion molding;
- a plurality of exhaust hole (12, 14, 16, 18), wherein holes (14) are located on the mold (See figure 14), wherein such holes are capable to exhaust gas between molded article which is capable to have the coating film on the surface and the surface of the mold is capable to molded the article in desired shape (See figure 2, 14; col.18 lines 46-54; col.19 lines 8-12; col.23 lines 23-50).

7. Andersen et al. discloses all claimed limitations as discussed above. It further teaches that the moldable composition comprises mixture of biodegradable material and coating material, but fails to teach or suggest that coating film distinct from the molding material and placing into the mold with a molding material as cited in claimed method.

8. **Doane et al. ('063)** discloses biodegradable article having lamination, wherein invention comprises interior layer (12) such as foam coated with polyester layer (14) and other layer (16) (See figure 2). It further teaches that coating of polyester material can be applied to the desired surface of the article by substantially any application technique such as spraying, brushing, compression molding, etc. (See col.4 lines 41-51), thus, such statements prove that the coating material is not mixed with foam material, but coating material is provided separately from the molding material. Furthermore, Compression molding technique for applying coating material of Doane et al. inherently suggests that the invention is capable to provide coating film and molding material into a mold during molding process, in order to give desired shape of the article (See figures 1-2).

9. It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the invention of Andersen et al. by providing coating material separately from the moldable material as taught by Doane et al. because such alignment allowed to use coating on the desired surface of moldable article, and, thus, able to exhibit the article with improved water resistance properties.

10. As to claim As to claim 2, **Andersen et al.** further teaches that a space leading to the cavity through the exhaust hole is formed inside the mold, and in the heating and molding step, space is hermetically separated from outside the mold (See figure 19).

11. As to claims 3-5, 26-28, **Andersen et al.** further teaches that the hermetically separated space has a volume set between third and twice that of a void in the cavity before heating and molding (See figures 18-19). It further teaches that the gas existing between the coating film and a surface of the mold is discharged out of the mold through

the holes (12, 16, 18) in the heating and molding step (See figure 2), Wherein the exhaust hole has a cross section between 0.12 mm^2 and 1.13 mm^2 (See col.23 lines 33-49).

12. As to claim 6, **Andersen et al.** discloses method for manufacturing articles, wherein method comprises steps of:

- Preparing a slurry or dough molding material, which is made by mixtures of starch, water and other material (See col.1 lines 51-60; col.4 lines 64-67; col.7 lines 21-27);
- selected coating material can be added to mixture prior to formation of the article (See col.10 lines 9-18; col.13 lines 37-42), wherein selected coating material comprises of biodegradable material (See col.49);
- heating step is carried out by a variety of ways such as electrical heating, stem heating, infrared light, etc. (See col.45 lines 1-10) and press molding process are capable to heat and mold the molding material and the coating film in a mold having a given-shaped cavity to mold the molding material through the steam expansion, and at the same time soften and pressure bond the coating film to a surface of a biodegradable expanded molded article obtained through the steam expansion molding;
- inside the mold of a deep drawing shape the molding material and the coating film being placed substantially flat for heating and molding the material into a deep drawing shape such as cup (See figures 9-10, and 18-19).

13. Andersen et al. discloses all claimed limitations as discussed above. It further teaches that the moldable composition comprises mixture of biodegradable material and coating material, but fails to teach or suggest that coating film distinct from the molding material and placing into the mold with a molding material as cited in claimed method.

14. **Doane et al. ('063)** discloses biodegradable article having lamination, wherein invention comprises interior layer (12) such as foam coated with polyester layer (14) and other layer (16) (See figure 2). It further teaches that coating of polyester material can be

applied to the desired surface of the article by substantially any application technique such as spraying, brushing, compression molding, etc. (See col.4 lines 41-51), thus, such statements prove that the coating material is not mixed with foam material, but coating material is provided separately from the molding material. Furthermore, Compression molding technique for applying coating material of Doane et al. inherently suggests that the invention is capable to provide coating film and molding material into a mold during molding process, in order to give desired shape of the article (See figures 1-2).

15. It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the invention of Andersen et al. by providing coating material separately from the moldable material as taught by Doane et al. because such alignment allowed to use coating on the desired surface of moldable article, and, thus, able to exhibit the article with improved water resistance properties.

16. As to claims 7-8, 29-30, **Andersen et al.** discloses all claimed structural limitations as discussed above. It further teaches the coating film being deformed at desired temperature and figures show that concave and convex mold are closed to each other, but fails to teach or suggest steps of movement of the mold members as cited in claims 7-8 and 29-30. So, it would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the invention of Andersen et al. by providing steps of movement of concave and convex molds, while coating film is deforming, so that the coating film adhered to the surface of the molded articles properly, without any gap or pinholes, and, thus, able to produce article with good appearance.

17. As to claims 12, 32, **Andersen et al.** teaches that the mold can be heated in a variety of ways, which is used to vary the temperature of the molds along the length of the mold in order to vary the properties of the hardened matrix within the molded article (See col.45 lines 1-10). By varying the temperature and processing time it is possible to affect the density, porosity and thickness of the surface layer or skin (See col.45 lines 11-15). It further teaches that the temperature of the mold has little, if any significant effect

on the rate of formation of the cells after the drop in pressure (See col.21 lines 30-35). It further teaches that the heating is done so that mold has a temperature 150-220 C (See col.22 lines 37-54). On the other hand, secondary art, **Doane et al.** having coating of polyester, which having the melting point of 255 C, thus such statement indicates that the mold of the primary art is capable to soften the coating film (polyester) of secondary art at least 10C lower than the melting point of the coating film. It is not necessary that the prior art suggests expressly or in so many words the changes or possible improvements the inventor made but that the knowledge is clearly present. *In re Sernaker, 217 USPQ 1 (Fed. Cir. 1983).*

18. As to claim 13, **Andersen et al.** discloses method for manufacturing articles, wherein method comprises steps of:

- Preparing a slurry or dough molding material, which is made by mixtures of starch, water and other material (See col.1 lines 51-60; col.4 lines 64-67; col.7 lines 21-27);
- selected coating material can be added to mixture prior to formation of the article (See col.10 lines 9-18; col.13 lines 37-42), wherein selected coating material comprises of biodegradable material (See col.49);
- heating step is carried out by a variety of ways such as electrical heating, stem heating, infrared light, etc. (See col.45 lines 1-10) and press molding process are capable to heat and mold the molding material and the coating film in a mold having a given-shaped cavity to mold the molding material through the steam expansion, and at the same time soften and pressure bond the coating film to a surface of a biodegradable expanded molded article obtained through the steam expansion molding;

19. Andersen et al. discloses all claimed limitations as discussed above. It further teaches that the moldable composition comprises mixture of biodegradable material and

coating material, but fails to teach or suggest that coating film distinct from the molding material and placing into the mold with a molding material as cited in claimed method.

20. **Doane et al. ('063)** discloses biodegradable article having lamination, wherein invention comprises interior layer (12) such as foam coated with polyester layer (14) and other layer (16) (See figure 2). It further teaches that coating of polyester material can be applied to the desired surface of the article by substantially any application technique such as spraying, brushing, compression molding, etc. (See col.4 lines 41-51), thus, such statements prove that the coating material is not mixed with foam material, but coating material is provided separately from the molding material. Furthermore, Compression molding technique for applying coating material of Doane et al. inherently suggests that the invention is capable to provide coating film and molding material into a mold during molding process, in order to give desired shape of the article (See figures 1-2).

21. It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the invention of Andersen et al. by providing coating material separately from the moldable material as taught by Doane et al. because such alignment allowed to use coating on the desired surface of moldable article, and, thus, able to exhibit the article with improved water resistance properties.

22. **Andersen et al.** teaches that the mold can be heated in a variety of ways, which is used to vary the temperature of the molds along the length of the mold in order to vary the properties of the hardened matrix within the molded article (See col.45 lines 1-10). By varying the temperature and processing time it is possible to affect the density, porosity and thickness of the surface layer or skin (See col.45 lines 11-15). It further teaches that the temperature of the mold has little, if any significant effect on the rate of formation of the cells after the drop in pressure (See col.21 lines 30-35). It further teaches that the heating is done so that mold has a temperature 150-220 C (See col.22 lines 37-54). On the other hand, secondary art, **Doane et al.** having coating of polyester, which having the melting point of 255 C, thus such statement indicates that the mold of the

primary art is capable to soften the coating film (polyester) of secondary art at least 10C lower than the melting point of the coating film. It is not necessary that the prior art suggests expressly or in so many words the changes or possible improvements the inventor made but that the knowledge is clearly present. *In re Sernaker, 217 USPQ 1 (Fed. Cir. 1983).*

23. As to claims 14-15, 34-35, **Andersen et al.** teaches that the heating is done so that mold has a temperature 150-220 C (See col.22 lines 37-54).

24. As to claims 16-17, 36, **Andersen et al.** further teaches that the molds are made of metal along with TEFLON coating (See col.44 lines 59-65), which inherently suggests that the surface of the mold is coated with slip agent such as PTFE as fluoropolymer which is in contact with biodegradable molding material during the molding process.

25. As to claims 18, 38, **Andersen et al.** further teaches that the coating film is a film mainly made of denatured polyester (See section of "coating film" col.49 lines 35 through col. 50 lines 2).

26. **Claims 19 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andersen et al. (U S Patent No. 5,783,126) in view of Doane et al. (US 6,040,063) and further in view of Okazaki et al. (EP 0679509 A2).**

27. Andersen et al. and/or Doane et al. disclose all claimed limitations as discussed above, but fail to teach or suggest the coating film is a biaxially stretched film.

28. **Okazaki et al. ('509)** disclose biaxially oriented laminated film as a biaxially stretched film with excellent scratch resistance, and friction property as well as excellent dubbing resistance (See abstract).

29. It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the invention Andersen et al. ('214) and/or Doane et al. by providing a biaxially stretched film as coating film because the biaxially stretched film having excellent scratch resistance, dubbing resistance and friction property, wherein

utility of the film prevents the article to degrade in high temperature, and, thus, able to maintain high quality image of the molded article as suggested by Okazaki et al.

Allowable Subject Matter

30. **Claims 9-11, 31, 33, 37, 39 and 40 are allowed.**

31. The following is an examiner's statement of reasons for allowance: The prior arts of record fails to teach or suggest a method of manufacturing the biodegradable articles as defined in claims of the instant application. The closet prior arts Andersen et al. (U S Patent No. 5,783,126), Okazaki et al. (EP 0679509 A2) and Ozasa et al. (U.S. Patent No. 7,332,214) fail to teach or suggest the method step of a central part of the coating film being deformed by moving the convex and concave molds in a direction, wherein these molds are fit and at least while the coating film is being deformed a relative moving speed of the convex mold to a plane formed by connecting a surface of non-deforming parts on an outer periphery of the coating film being maintained from 8 mm/s to 12 mm/s as defined in claim 9 of the instant application. None of prior arts of record, taken alone or in combination, inter alia teaches or fairly suggests the limitation of apparatus as set forth in the claims of the instant application.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

32. Applicant argues that Andersen (US 5,783,126) teaches that coating can be formed during the forming process by adding coating material that has approximately the same melting temperature as the peak temperature of the mixture; and the mixture is heated, the coating material melts and moves with the vaporized solvent to the surface of the article where it coats the surface, but Andersen fails to teach or suggest that coating film distinct from the molding material and placing into the mold with a molding material as

cited in claimed method. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

Pertinent arts

33. **Okuda et al. (JP 57-001712)** discloses an invention related to device for manufacturing article from thermoplastic expandable resin material (See abstract), wherein device comprises mold parts (10,20), wherein each mold parts having an exhaust hole (12, 22) there through to discharge the gas in the cavity outside piercing through (See figure 2). Figure 2 shows that inside the mold, an enclosed space is formed leading to the cavity through the exhaust hole and separated from outside the mold, wherein the exhaust holes (12, 22) lead to outside the mold to discharge gas in cavity to the outside the mold.

34. **Joppen et al. (US 6,103,163)** discloses an invention relates to perforate smooth, closed surfaces of open cell plastic foam sheet, wherein invention comprises mold blocks (9,11) having a plurality of exhaust or suction or vacuum holes (44,50) (See figure 7). Figure 7 further shows that the mold block (11) comprises closed space (41-43) located within the internal of the mold and leading to the cavity through the holes (44,50). It further teaches that the closed space (41-43) is closed at outside of the mold by plug or seal (48), thus, the gas in not able to escape (See figure 7).

35. **Ando et al. (US 5,639,518)** discloses an invention related to mold biodegradable article, wherein article comprises coating material is applied to the surface distinctly from the moldable material.

36. **WO (90/01043)** discloses an invention related to mold biodegradable article, wherein article comprises coating of hydrophobic material such as polyester.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DIMPLE N. BODAWALA whose telephone number is

(571)272-6455. The examiner can normally be reached on Monday - Friday at 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, PHILLIP C. TUCKER can be reached on (571) 272-1095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Dimple N Bodawala
Examiner
Art Unit 1791

/D. N. B./
Examiner, Art Unit 1791

/Philip C Tucker/
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